

Camshaft

Inspection

NOTE:

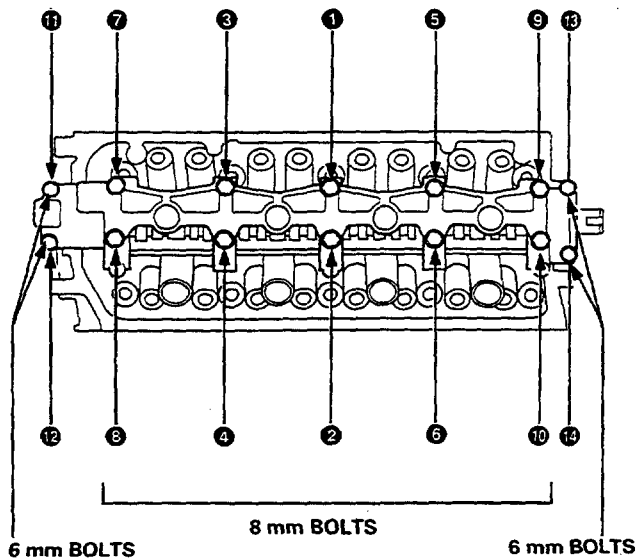
- Do not rotate the camshaft during inspection.
- Remove the rocker arms and rocker shafts.

1. Put the camshaft and the camshaft holders on the cylinder head, then tighten the bolts to the specified torque.

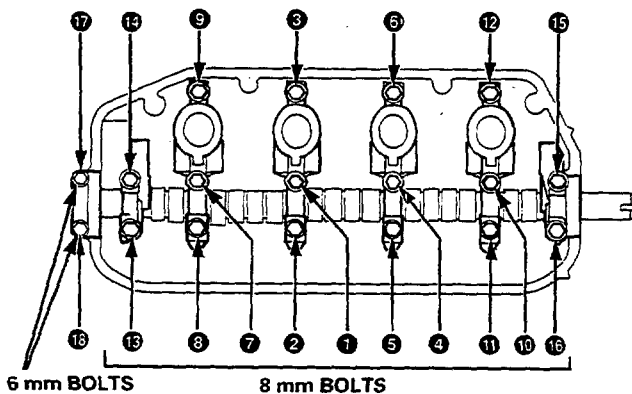
Specified torque:

8 mm bolts: 22 N·m (2.2 kgf·m 16 lbf·ft)
6 mm bolts: 12 N·m (1.2 kgf·m 8.7 lbf·ft)

D16Y2, D15Z3 engines:



D16Y3, D14A2 engines:

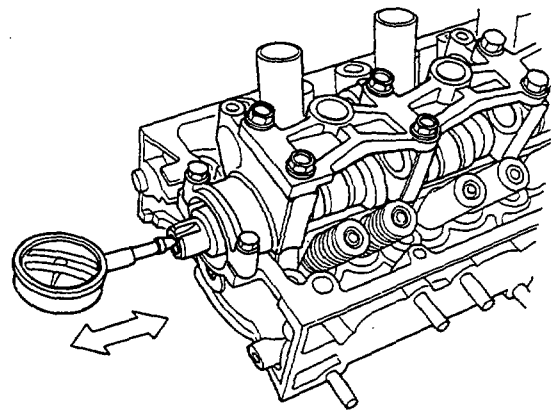


2. Seat the camshaft by pushing it toward the rear of the cylinder head.
3. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth, and read the end play.

Camshaft End Play:

Standard (New): 0.05 – 0.15 mm
(0.002 – 0.006 in)

Service Limit: 0.5 mm (0.02 in)

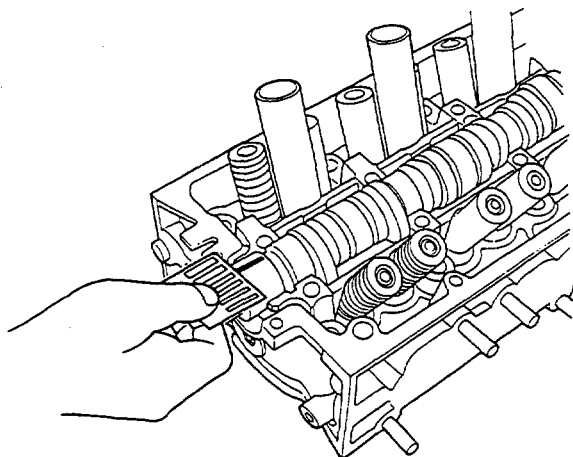


4. Remove the bolts, then remove the camshaft holders from the cylinder head.
 - Lift camshaft out of cylinder head, wipe clean, then inspect lift ramps. Replace camshaft if lobes are pitted, scored, or excessively worn.
 - Clean the camshaft bearing surfaces in the cylinder head, then set camshaft back in place.
 - Insert plastigage strip across each journal.
5. Install the camshaft holders and tighten the bolts to the specified torque.



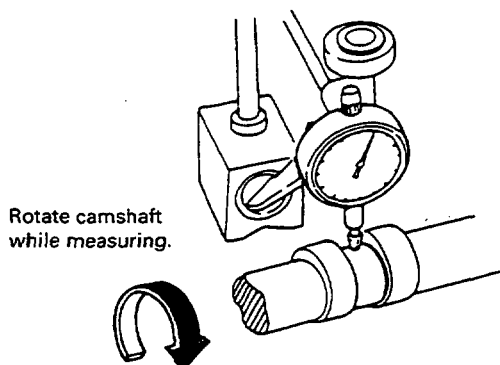
6. Remove the camshaft holders, then measure the widest portion of the plastigage on each journal.

Camshaft-to-Holder Oil Clearance:
Standard (New): 0.050 – 0.089 mm
 (0.002 – 0.004 in)
Service Limit : 0.15 mm (0.006 in)



7. If the camshaft-to-holder oil clearance is out of tolerance:
 - And the camshaft has already been replaced, you must replace the cylinder head.
 - If the camshaft has not been replaced, first check the total runout with the camshaft supported on V-blocks.

Camshaft Total Runout:
Standard (New): 0.03 mm (0.001 in)
Service Limit: 0.04 mm (0.002 in)



- If the total runout of the camshaft is within tolerance, replace the cylinder head.
- If the total runout is out of tolerance, replace the camshaft and recheck. If the bearing clearance is still out of tolerance, replace the cylinder head.

8. Check the cam lobe height wear.

Cam lobe height standard (New)

Unit mm (in)

		INTAKE	EXHAUST
D14A2 engine		34.545 (1.3600)	35.175 (1.3848)
D16Y3 engine		36.782 (1.4481)	36.947 (1.4546)
D15Z3 engine	PRI	38.427 (1.5129)	37.997 (1.4959)
	SEC	32.292 (1.2713)	
D16Y2 engine	PRI	35.900 (1.4134)	38.008 (1.4964)
	SEC	36.195 (1.4250)	
	MID	38.274 (1.5068)	

PRI: Primary cam lobe, SEC: Secondary cam lobe.
 MID: Mid cam lobe, T/B: Timing belt.
 IN: Intake, EX: Exhaust

